

Serial No.: 10/565,284  
Docket No.: 28951.5462

IN THE CLAIMS:

1. (Currently Amended) A negative pressure utilization type of slider comprising:

a head for recording onto a disk or reproducing from a disk; and

an air bearing surface for facing such a disk, said air bearing surface comprising a plurality of substantially flat surfaces, said substantially flat surfaces differing in height from each other, for generating an air flow when such disk rotates, thereby causing the slider to float over such disk,

the air bearing surface having three stages comprising an air inflow surface, a positive pressure generating surface and a negative pressure generating surface, respectively, in order, from an air flow incoming end to an air flow outgoing end of the slider,

wherein the air inflow surface extends to the air flow incoming end,

the air inflow surface has a groove extending ~~between, and including,~~ a disk inner peripheral end and a disk outer peripheral end of the air inflow surface, a bottom surface of the groove being lower in height than the air inflow surface relative to a surface opposite the disk-facing surface, the groove being parallel to and set back from the air flow incoming end, such that it does not contact an edge of the air flow incoming end, and

the three stages of the air bearing surface differing in height, the three stages comprising an upper stage surface highest in height, a lower stage surface lowest in height and a middle surface lower than the upper stage surface and higher than the lower stage surface, the positive pressure generating surface, the air inflow surface and the negative pressure generating surface being formed on the upper stage surface, the middle surface and the lower stage surface, respectively.

2. (Canceled).

Serial No.: 10/565,284  
Docket No.: 28951.5462

3. (Previously Presented) The slider according to claim 1, wherein the bottom surface of the groove is flush with, and the same height as, the negative pressure generating surface.
4. (Canceled).
5. (Previously Presented) The slider according to claim 1, wherein the groove is located at least 20  $\mu\text{m}$  from the air flow incoming end.
6. (Previously Presented) The slider according to claim 1, wherein the groove has a width of at least 30  $\mu\text{m}$ .
7. (Previously Presented) The slider according to claim 1, wherein the head is a magnetic head.
8. (Previously Presented) The slider according to claim 1, wherein the head comprises a magnetoresistive element.
9. (Previously Presented) The slider according to claim 1, wherein the air bearing surface has an area of not more than 1  $\text{mm}^2$ .
10. (Previously Presented) The slider according to claim 1, wherein the air bearing surface has an area of not less than 0.5  $\text{mm}^2$ .

Serial No.: 10/565,284  
Docket No.: 28951.5462

11. (Currently Amended) A disk device for operating with an information bearing disk, said disk device including the a slider according to claim 1.

12. (Currently Amended) The disk device according to claim 11, further including means for recording, reproducing, or both recording and reproducing in a disk region where a relative speed between the slider and the a disk is not higher than 10 m/s.

13. (Currently Amended) The disk device according to claim 11, further including means for recording, reproducing or both recording and reproducing in a disk region where a relative speed between the slider and the a disk is not higher than 7 m/s.

14. (Currently Amended) A negative pressure utilization type of slider comprising:

a head for recording onto a disk or reproducing from a disk; and

an air bearing surface ~~in a surface~~ for facing such a disk, the air bearing surface comprising a plurality of substantially flat surfaces, said substantially flat surfaces differing in height from each other, for generating an air flow when such disk rotates, thereby causing the slider to float over such disk,

the air bearing surface having three stages comprising an air inflow surface, a positive pressure generating surface, and a negative pressure generating surface, respectively, in this order from an air flow incoming end to an air flow outgoing end of the slider,

wherein the air inflow surface extends to the air flow incoming end.

Serial No.: 10/565,284  
Docket No.: 28951.5-162

wherein the air inflow surface has a groove extending from ~~and including~~ a disk inner peripheral end toward and including a disk outer peripheral end of the air inflow surface, a bottom surface of the groove being lower in height than the air inflow surface relative to a surface opposite the disk-facing surface, the groove being parallel to and set back from the air flow incoming end, such that it does not contact an edge of the air flow incoming end, and

the three stages of the air bearing surface differing in height, the three stages comprising an upper stage surface highest in height, a lower stage surface lowest in height and a middle surface lower than the upper stage surface and higher than the lower stage surface, the positive pressure generating surface, the air inflow surface and the negative pressure generating surface being formed on the upper stage surface, the middle surface and the lower stage surface, respectively.

15. (Canceled).

16. (Previously Presented) The slider according to claim 14, wherein the bottom surface of the groove is flush with, and the same height as, the negative pressure generating surface.

17. (Canceled).

18. (Previously Presented) The slider according to claim 14, wherein the groove is located at least 20  $\mu\text{m}$  from the air flow incoming end.

Serial No.: 10/565,284  
Docket No.: 28951.5462

19. (Previously Presented) The slider according to claim 14, wherein the groove c has a width of at least 30  $\mu\text{m}$ .

20. (Previously Presented) The slider according to claim 14, wherein the head is a magnetic head.

21. (Currently Amended) The slider according to claim 14, wherein the head ~~is composed of~~ comprises a magnetoresistive element.

22. (Previously Presented) The slider according to claim 14, wherein the air bearing surface has an area of not more than 1  $\text{mm}^2$ .

23. (Currently Amended) The slider according to claim 14, wherein the air bearing surface has an area of not less than 0.5  $\text{mm}^2$ . ~~16.~~

24. (Currently Amended) A disk device for operating with an information bearing disk, said disk drive including the a slider according to claim 14.

25. (Currently Amended) The disk device according to claim 24, further including means for recording, reproducing or both recording and reproducing in a disk region where a relative speed between the slider and ~~the a~~ disk is not higher than 10 m/s.

Serial No.: 10/565.284  
Docket No.: 28951.5462

26. (Currently Amended) The disk device according to claim 24, further including means for recording, reproducing or both recording and reproducing in a disk region where a relative speed between the slider and ~~the~~ a disk is not higher than 7 m/s.

27. (Currently Amended) A negative pressure utilization type of slider comprising:

a head for recording onto a disk or reproducing from a disk; and

an air bearing surface ~~in a surface facing~~ for facing such a disk, the air bearing surface comprising a plurality of substantially flat surfaces, said substantially flat surfaces differing in height from each other, for generating an air flow when such disk rotates, thereby causing the slider to float over such disk,

the air bearing surface having three stages comprising an air inflow surface, a positive pressure generating surface, and a negative pressure generating surface, respectively, in ~~this~~ order, from an air flow incoming end to an air flow outgoing end of the slider,

wherein the air inflow surface extends to the air flow incoming end,

the air inflow surface has a groove extending from ~~and including~~ a disk outer peripheral end toward and including a disk inner peripheral end of the air inflow surface, a bottom surface of the groove being lower in height than the air inflow surface relative to a surface opposite the disk-facing surface, the groove being parallel to and set back from the air flow incoming end, such that it does not contact an edge of the air flow incoming end, and

the three stages of the air bearing surface differing in height, the three stages comprising: an upper stage surface highest in height, a lower stage surface lowest in height and a middle surface lower than the upper stage surface and higher than the lower stage surface, the positive pressure

Serial No.: 10/565.284  
Docket No.: 28951.5462

generating surface, the air inflow surface and the negative pressure generating surface being formed on the upper stage surface, the middle surface and the lower stage surface, respectively.

28. (Canceled).

29. (Currently Amended) The slider according to claim 1 27, wherein the bottom surface of the groove is flush with, and the same height as, the negative pressure generating surface.

30. (Canceled).

31. (Previously Presented) The slider according to claim 27, wherein the groove is located at least 20 um from the air flow incoming end.

32. (Previously Presented) The slider according to claim 27, wherein the groove has a width of at least 30 um.

33. (Previously Presented) The slider according to claim 27, wherein the head is a magnetic head.

34. (Previously Presented) The slider according to claim 27, wherein the head comprises a magnetoresistive element.

Serial No.: 10/565,384  
Docket No.: 28951.5-62

35. (Previously Presented) The slider according to claim 27, wherein the air bearing surface has an area of not more than  $1 \text{ mm}^2$ .

36. (Previously Presented) The slider according to claim 27, wherein the air bearing surface has an area of not less than  $0.5 \text{ mm}^2$ .

37. (Currently Amended) A disk device for operating with an information bearing disk, said disk device including ~~the~~ a slider according to claim 27.

38. (Currently Amended) The disk device according to claim 37, further including means for recording, reproducing or both recording and reproducing in a disk region where a relative speed between the slider and ~~the~~ a disk is not higher than 10 m/s.

39. (Currently Amended) The disk device according to claim 37, further including means for recording, reproducing or both recording and reproducing in a disk region where a relative speed between the slider and ~~the~~ a disk is not higher than 7 m/s.